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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/785,057

02/25/2004

Paul M. Julich

GEH01 057

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07/24/2008

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EXAMINER

BEHNCKE, CHRISTINE M

ART UNIT

PAPER NUMBER

3661

MAIL DATE

DELIVERY MODE

07/24/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/785,057	<b>Applicant(s)</b> JULICH ET AL.	
	<b>Examiner</b> CHRISTINE M. BEHNCKE	<b>Art Unit</b> 3661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 4,6,7,9,10,12-18 and 34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4,6,7,9,10,12-18 and 34 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

This office action is in response to the Amendment and Remarks filed 4/14/2008, in which claims 4, 6, 7, 9, 10, 12-18, and 34 were presented for examination.

#### ***Response to Arguments***

Applicant's arguments with respect to claims 4, 6, 7, 9, and 10 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 12, the phrase "boundary elements" renders the claim indefinite because it is unclear whether the limitation(s) within the parentheses are part of the claimed invention. See MPEP § 2173.05(d).

#### ***Claim Objections***

Claim 6 is objected to because of the following informalities: the phrase "the planning time horizon" lacks antecedent basis because no planning time horizon was claimed previously to refer to. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 4, 9, 10, 12-17, 18 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gottschlich, US 5,823,481, in view of MacPhail, US 2003/0060966.

Gottschlich describes a method of controlling the movement of plural trains along a network comprising: dividing the network, global planning area, into plural planning areas (figure 3), with each pair of adjacent planning areas sharing at least one common boundary element on track common to the adjacent pair of planning areas (column 2, lines 28-42); developing a local movement plan for each planning area independently of the movement plan for other planning areas to control the movement of trains into and out of the selected boundary elements associated with the planning area (column 5, lines 7-14). Gottschlich describes wherein the independent controllers evaluate conflicts through a request/reply communication, seeking permission on a section by section basis. Gottschlich does not teach evaluating the local movement plans for adjacent planning areas to identify conflicts. However, MacPhail teaches a hierarchical traffic control system wherein a primary controller evaluates the movement plans of the secondary separate regional controllers (figure 1). The regional controllers independently of each other control the traffic of their region ([0026]), and the primary controller evaluates the local movement plans for adjacent secondary controllers to identify and resolve conflicts at the respective boundaries of the areas ([0011], [0038]). MacPhail further teaches modifying the local movement plans for the planning areas to resolve the identified conflicts ([0026]). It would have been obvious to one of ordinary skill in traffic management to combine the separate/independent traffic control system of Gottschlich with the hierarchical, separate but connected traffic control system, because

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as MacPhail suggests the hierarchical control system allows for effective local control over individual vehicles, and allows for overall traffic management of all the local areas ([0038]) to prevent perpetuating traffic instability ([0005]). Neither Gottschlich nor MacPhail teach dividing the network into planning areas as a function of the amount of traffic, or assigning a business function to each of the trains in the planning area, and wherein the size of the planning area is a function of the amount of traffic and amount of track. However, Morariu teaches a method of generating optimized traffic movement plans, wherein each plan is monitored by a plan monitor that generates a movement plan, the region of planning of each plan monitor is found as a function of the amount of proposed traffic for the track of each planning area (column 14, lines 20-30); wherein the local plan is evaluated including: assigning a business objective function for each of the trains in the planning area (column 8, lines 41-55); evaluating the business objective functions for each of the trains (column 16, lines 25-31); identifying a capacity of the boundary element, constraints on occupancy times and the planned usage of the specified boundary element from each of the planning areas (column 19, lines 35-65); providing movement order constraints for each boundary element (column 23, lines 31-53); and providing an order for the trains to move through the boundary element (column 23, lines 31-53); and selecting the size of the planning area as a function of the amount of track and amount of proposed traffic along the track in the planning area (column 14, lines 20-30, and column 23, lines 31-53). Morariu further teaches providing a daily schedule for all trains transiting the network, the daily schedule providing waypoints and activity locations and time of arrival and departure at, each of the

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waypoint and activity locations (figure 8, column 8, line 60-column 9, line 3); periodically updating each local movement plan as a function of the monitored movement of train components (column 10, line 66-column 11, line 7); and identifying a conflict that can not be resolved (column 17, lines 39-59). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Gottschlich and MacPhail with the teachings of Morariu because as Morariu suggests, the flexibility of changing the sizing of the region plans based traffic, track and capacity allows for the adjusting the planning cycle time and providing for quicker planning schedules (column 6, lines 54-67).

***Claim Rejections - 35 USC § 103***

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gottschlich, US 5,823,481, in view of MacPhail, US 2003/0060966, in further view of Doner, US 6,873,962, and Vu et al, US 6,459,964.

(Claims 6 and 7) Gottschlich describes a method of controlling the movement of plural trains along a network comprising: dividing the network into plural planning areas (figure 3), with each pair of adjacent planning areas sharing at least one common boundary element on track common to the adjacent pair of planning areas (column 2, lines 28-42); developing a local movement plan for each planning area independently of the movement plan for other planning areas to control the movement of trains into and out of the selected boundary elements associated with the planning area (column 5, lines 7-14). Gottschlich describes wherein the independent controllers evaluate conflicts through a request/reply communication, seeking permission on a section by section

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basis. Gottschlich does not teach evaluating the local movement plans for adjacent planning areas to identify conflicts. However, MacPhail teaches a hierarchical traffic control system wherein a primary controller evaluates the movement plans of the secondary separate regional controllers (figure 1). The regional controllers independently of each other control the traffic of their region ([0026]), and the primary controller evaluates the local movement plans for adjacent secondary controllers to identify and resolve conflicts at the respective boundaries of the areas ([0011], [0038]). MacPhail further teaches modifying the local movement plans for the planning areas to resolve the identified conflicts ([0026]). It would have been obvious to one of ordinary skill in traffic management to combine the separate/independent traffic control system of Gottschlich with the hierarchical, separate but connected traffic control system, because as MacPhail suggests the hierarchical control system allows for effective local control over individual vehicles, and allows for overall traffic management of all the local areas ([0038]) to prevent perpetuating traffic instability ([0005]). Neither Gottschlich nor MacPhail teach that a planning time horizon is approximately eight hours or updated hourly. However, Doner teaches a method for scheduling trains that move in and out of a train corridor, wherein the schedule time horizon is approximately eight hours (figure 13). Vu et al teaches updating train schedules approximately hourly (column 4, lines 64-65). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Gottschlich in view of MacPhail with the teachings of Doner and Vu et al. because the planning time horizon was well known to be any appropriate time within a 24 hour period, it would be merely a decision of the inventor

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based on the particular necessities and constraints of the local region to make the planning time horizon longer than the period exemplified by Doner or not. Further, it would have been obvious to one of ordinary skill in the train art to update the schedule hourly or by necessity to take into account any unforeseen changes to the planning area or traffic.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTINE M. BEHNCKE whose telephone number is (571)272-8103. The examiner can normally be reached on 8:30 am- 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/C. M. B./  
Examiner, Art Unit 3661

/Thomas G. Black/  
Supervisory Patent Examiner, Art Unit 3661